

SEQUENCE LISTING

<110> McGill University

<120> Oligonucleotide Inhibitors of MBD2/DNA
Demethylase and Uses Thereof

<130> 26473U

<140> 10/518,470

<141> 2003-06-20

<150> 60/389,926

<151> 2002-06-20

<160> 15

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 2584

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (0)...(0)

<223> cDNA MBD2/dMTase

<400> 1

```

gggggctg  ccccgagaag  gcggagacaa  gatggccgcc  catagcgctt  ggaggaccta  60
agaggcgtg  gccggggcca  cgccccgggc  aggaggggcg  ctctgtgcgc  gcccgctcta  120
tgatgcttg  gcgcgtcccc  cgcgcgccgc  gctgcgggcg  gggcggtct  ccgggattcc  180
aagggtctcg  ttacggaaga  agcgagcgcg  cggttgggga  gggggtgga  tgcgcgcgca  240
cccgggggga  ggccgctgct  gcccgagca  ggaggagggg  gagagtgcgg  cgggcggcag  300
cggcgctggc  ggcgactccg  ccatagagca  ggggggcccag  ggcagcgcg  tcgccccgtc  360
cccggtgagc  ggcgtgcgca  gggaaggcgc  tcggggcgcc  ggccgtggcc  gggggcggtg  420
gaagcaggcg  ggccggggcg  gcggcgtctg  tgcccggtgg  cggggccggg  gccgtggccg  480
gggacgggga  cggggccggg  gccggggccg  cgcccgctcc  ccgagtggcg  gcagcggcct  540
tggcggcgac  ggcggcggt  gcggcgcgcg  cggcagcggt  ggcggcgcg  cccccggcg  600
ggagccggtc  cctttccgt  cggggagcgc  gggggcggg  ccaggggac  cccgggccac  660
ggagagcggg  aagaggatgg  attgcccggc  cctccccccc  ggatggaaga  aggaggaaat  720
gatccgaaaa  tctgggctaa  gtgctggcaa  gagcgatgtc  tactacttca  gtccaagtgg  780
taagaagttc  agaagcaagc  ctgagttggc  aaggtacctg  ggaaatactg  ttgatctcag  840
cagttttgac  ttcagaactg  gaaagatgat  gcctagtata  ttacagaaga  acaaacagag  900
actgcgaaac  gatcctctca  atcaaaataa  gggtaaacca  gacttgaata  caacattgcc  960
aattagacaa  acagcatcaa  ttttcaaaca  accggttaac  aaagtcacaa  atcatcctag  1020
taataaagtg  aaatcagacc  cacaacgaat  gaatgaacag  ccacgtcagc  ttttctggga  1080
gaagaggcta  caaggactta  gtgcatcaga  tgtaacagaa  caaattataa  aaaccatgga  1140
actacccaaa  ggtcttcaag  gagttggtcc  aggtagcaat  qatqaqacc  ttttatctgc  1200
tgttgccagt  gctttgcaca  caagctctgc  gccaatcaca  gggcaagtct  ccgctgctgt  1260
ggaaaagaac  cctgctgttt  ggcttaacac  atctcaacc  ctctgcaaag  cttttattgt  1320
cacagatgaa  gacatcagga  aacaggaaga  gcgagtacag  caagtacgca  agaaattgga  1380
agaagcactg  atggcagaca  tcttgtcgcg  agctgctgat  acagaagaga  tggatattga  1440
aatggacagt  ggagatgaag  cctaagaata  tgatcaggta  actttcgacc  gactttcccc  1500

```

```

aagagaaaat tcctagaaat tgaacaaaaa tgtttccact ggcttttgcc tgtaagaaaa 1560
aaaaatgtacc cgagcacata gagcttttta atagcactaa ccaatgcctt tttagatgta 1620
tttttgatgt atatatctat tattcaaaaa atcatgttta ttttgagtcc taggacttaa 1680
aattagtcctt ttgtaaatatc aagcaggacc ctaagatgaa gctgagcttt tgatgccagg 1740
tgcaatctac tggaaatgta gcacttacgt aaaacatttg tttcccccac agttttaata 1800
agaacagatc aggaattcta aataaatttc ccagttaaag attattgtga cttcactgta 1860
tataaacata tttttatact ttattgaaag gggacacctg tacattcttc catcatcact 1920
gtaaagacaa ataaatgatt atattcacag actgattgga attctttctg ttgaaaagca 1980
cacacaataa agaacccttc gttagccttc ctctgattta cattcaactc tgatccctgg 2040
gccttaggtt tgacatggag gtggaggaag atagcgcata tatttgcagt atgaactatt 2100
gcctctggac gttgtgagaa ttgtgctttc accagaattt ctaagaattt ctgctaaata 2160
tcacctagca tgtgtaattt ttttcccttg cctgtgactt ggacttttga tagttctata 2220
agaataaggc tttttcttcc cttgggcatg agtcagatac acaaggaccc ttcagggtgt 2280
actagaaggc gtccatgttt attgtttttt aaagaatggt tggcactctc taacgtccac 2340
tagcttactg agttatcagg tgcaggtcag actcttggct acagtgagag gcagcttcta 2400
ggcagagttg cttaatgaaa gggtttgtaa tactttacaa accattacct gtacctggcc 2460
tggcctccaa aatattaaca ttctttttct gttgaaactc gcgagtgtaa ctttcatacc 2520
acttgaattt attgatattt aattatgaaa actagcatta cattattaaa cgattttctaa 2580
aatc 2584

```

```

<210> 2
<211> 411
<212> PRT
<213> Homo sapiens

```

```

<400> 2
Met Arg Ala His Pro Gly Gly Gly Arg Cys Cys Pro Glu Gln Glu Glu
1          5          10          15
Gly Glu Ser Ala Ala Gly Gly Ser Gly Ala Gly Gly Asp Ser Ala Ile
20          25          30
Glu Gln Gly Gly Gln Gly Ser Ala Leu Ala Pro Ser Pro Val Ser Gly
35          40          45
Val Arg Arg Glu Gly Ala Arg Gly Gly Gly Arg Gly Arg Gly Arg Trp
50          55          60
Lys Gln Ala Gly Arg Gly Gly Gly Val Cys Gly Arg Gly Arg Gly Arg
65          70          75          80
Gly Arg Gly Arg Gly Arg Gly Arg Gly Arg Gly Arg Gly Arg Gly Arg
85          90          95
Pro Pro Ser Gly Gly Ser Gly Leu Gly Gly Asp Gly Gly Gly Cys Gly
100         105         110
Gly Gly Gly Ser Gly Gly Gly Gly Ala Pro Arg Arg Glu Pro Val Pro
115         120         125
Phe Pro Ser Gly Ser Ala Gly Pro Gly Pro Arg Gly Pro Arg Ala Thr
130         135         140
Glu Ser Gly Lys Arg Met Asp Cys Pro Ala Leu Pro Pro Gly Trp Lys
145         150         155         160
Lys Glu Glu Val Ile Arg Lys Ser Gly Leu Ser Ala Gly Lys Ser Asp
165         170         175
Val Tyr Tyr Phe Ser Pro Ser Gly Lys Lys Phe Arg Ser Lys Pro Gln
180         185         190
Leu Ala Arg Tyr Leu Gly Asn Thr Val Asp Leu Ser Ser Phe Asp Phe
195         200         205
Arg Thr Gly Lys Met Met Pro Ser Lys Leu Gln Lys Asn Lys Gln Arg
210         215         220
Leu Arg Asn Asp Pro Leu Asn Gln Asn Lys Gly Lys Pro Asp Leu Asn
225         230         235         240
Thr Thr Leu Pro Ile Arg Gln Thr Ala Ser Ile Phe Lys Gln Pro Val

```



```

gaaactggag gaggcactga tggccgacat cctgtcccgg gctgcgga cggaggaagt 1440
agacattgac atggacagtg gagatgaggc gtaagaatat gatcaggtaa ctttcgactg 1500
accttcccca agagcaaatt gctagaaaca gaattaaaac atttccactg ggtttcgcct 1560
gtaagaaaaa gtgtacctga gcacatagct ttttaatagc actaaccaat gccttttttag 1620
atgtattttt gatgtatata tctattattc caaatgatgt ttattttgaa tcctaggact 1680
taaaatgagt cttttataat agcaagcagg gcccttcagg tgcagtgcag ctttgaggcc 1740
aggtgcagtc tactggaaag gtagcactta cgtgaaatat ttgtttcccc cacagtttta 1800
atataaacag atcaggagta ccaaataagt ttcccaatta aagattatta tacttctactg 1860
tatataaaca gatttttata ctttattgaa agaagatacc tgtacattct tccatcatca 1920
ctgtaaagac aaataaatga ctatattcac aga                                     1953

```

<210> 4

<211> 414

<212> PRT

<213> Mus musculus

<400> 4

```

Met Arg Ala His Pro Gly Gly Gly Arg Cys Cys Pro Glu Gln Glu Glu
 1          5          10          15
Gly Glu Ser Ala Ala Gly Gly Ser Gly Ala Gly Gly Asp Ser Ala Ile
          20          25          30
Glu Gln Gly Gly Gln Gly Ser Ala Leu Ala Pro Ser Pro Val Ser Gly
          35          40          45
Val Arg Arg Glu Gly Ala Arg Gly Gly Gly Arg Gly Arg Gly Arg Trp
          50          55          60
Lys Gln Ala Ala Arg Gly Gly Gly Val Cys Gly Arg Gly Arg Gly Arg
          65          70          75          80
Gly Arg Gly Arg Gly Arg Gly Arg Gly Arg Gly Arg Gly Arg Gly Arg
          85          90          95
Pro Gln Ser Gly Gly Ser Gly Leu Gly Gly Asp Gly Gly Gly Gly Ala
          100          105          110
Gly Gly Cys Gly Val Gly Ser Gly Gly Gly Val Ala Pro Arg Arg Asp
          115          120          125
Pro Val Pro Phe Pro Ser Gly Ser Ser Gly Pro Gly Pro Arg Gly Pro
          130          135          140
Arg Ala Thr Glu Ser Gly Lys Arg Met Asp Cys Pro Ala Leu Pro Pro
          145          150          155          160
Gly Trp Lys Lys Glu Glu Val Ile Arg Lys Ser Gly Leu Ser Ala Gly
          165          170          175
Lys Ser Asp Val Tyr Tyr Phe Ser Pro Ser Gly Lys Lys Phe Arg Ser
          180          185          190
Lys Pro Gln Leu Ala Arg Tyr Leu Gly Asn Ala Val Asp Leu Ser Ser
          195          200          205
Phe Asp Phe Arg Thr Gly Lys Met Met Pro Ser Lys Leu Gln Lys Asn
          210          215          220
Lys Gln Arg Leu Arg Asn Asp Pro Leu Asn Gln Asn Lys Gly Lys Pro
          225          230          235          240
Asp Leu Asn Thr Thr Leu Pro Ile Arg Gln Thr Ala Ser Ile Phe Lys
          245          250          255
Gln Pro Val Thr Lys Phe Thr Asn His Pro Ser Asn Lys Val Lys Ser
          260          265          270
Asp Pro Gln Arg Met Asn Glu Gln Pro Arg Gln Leu Phe Trp Glu Lys
          275          280          285
Arg Leu Gln Gly Leu Ser Ala Ser Asp Val Thr Glu Gln Ile Ile Lys
          290          295          300
Thr Met Glu Leu Pro Lys Gly Leu Gln Gly Val Gly Pro Gly Ser Asn
          305          310          315          320

```

Asp	Glu	Thr	Leu	Leu	Ser	Ala	Val	Ala	Ser	Ala	Leu	His	Thr	Ser	Ser	
				325					330					335		
Ala	Pro	Ile	Thr	Gly	Gln	Val	Ser	Ala	Ala	Val	Glu	Lys	Asn	Pro	Ala	
			340					345					350			
Val	Trp	Leu	Asn	Thr	Ser	Gln	Pro	Leu	Cys	Lys	Ala	Phe	Ile	Val	Thr	
		355				360					365					
Asp	Glu	Asp	Ile	Arg	Lys	Gln	Glu	Glu	Arg	Val	Gln	Gln	Val	Arg	Lys	
	370					375					380					
Lys	Leu	Glu	Glu	Ala	Leu	Met	Ala	Asp	Ile	Leu	Ser	Arg	Ala	Ala	Asp	
385					390					395					400	
Thr	Glu	Glu	Val	Asp	Ile	Asp	Met	Asp	Ser	Gly	Asp	Glu	Ala			
			405					410								

<210> 5
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antisense oligonucleotide

<400> 5
 ggcaatccat cctcttcc 18

<210> 6
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antisense oligonucleotide

<400> 6
 cttcctcctt cttccatc 18

<210> 7
 <211> 17
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antisense oligonucleotide

<400> 7
 caacagtatt tcccagg 17

<210> 8
 <211> 17
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Antisense oligonucleotide

<400> 8
 tgtagcctct tctccca 17

<210> 9
 <211> 18
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Antisense oligonucleotide

 <400> 9
 atccagcccc ctccccag 18

 <210> 10
 <211> 18
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Antisense oligonucleotide

 <400> 10
 cactctcccc ctccccct 18

 <210> 11
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Antisense oligonucleotide

 <400> 11
 tcaacagtat ttcccaggta 20

 <210> 12
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Antisense oligonucleotide

 <400> 12
 ucaacagtat ttcccaggua 20

 <210> 13
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> oligonucleotide

 <400> 13
 auggaccctt tatgacaacu 20

 <210> 14

<211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> oligonucleotide

<400> 14
 cgattcaatc ctcacctctc

20

<210> 15
 <211> 2792
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (0)...(0)
 <223> cDNA MBD2/dMTase

<400> 15

gggggcgtgg	ccccgagaag	gcggagacaa	gatggccgcc	catagcgctt	ggaggaccta	60
agaggcgggtg	gccggggcca	cgccccgggc	aggagggccg	ctctgtgcgc	gcccgtctta	120
tgatgcttgc	gcgcgtcccc	cgcgcgccgc	gctgcgggcg	gggcgggtct	ccgggattcc	180
aagggtcgg	ttacggaaga	agcgagcgc	cggctgggga	gggggctgga	tgcgcgcgca	240
cccgggggga	ggcgcgtgct	gcccggagca	ggaggagggg	gagagtgcgg	cgggcggcag	300
cggcgtggc	ggcgactccg	ccatagagca	ggggggccag	ggcagcgcgc	tcgccccgtc	360
cccggctgagc	ggcgtgcgca	gggaaggcgc	tcggggcgcc	ggccgtggcc	gggggcgggtg	420
gaagcaggcg	ggccggggcg	gcggcgtctg	tggccgtggc	cggggccggg	gccgtggccg	480
gggacgggga	cggggccggg	gccggggccg	cggccgtccc	ccgagtggcg	gcagcggcct	540
tggcggcgac	ggcggcgggc	gcggcgggcg	cggcagcggc	ggcggcgggc	ccccccggcg	600
ggagccggtc	cctttcccgt	cggggagcgc	ggggccgggg	cccaggggac	cccggggccac	660
ggagagcggg	aagaggatgg	attgcccgcc	cctccccccc	ggatggaaga	aggaggaagt	720
gatccgaaaa	tctgggctaa	gtgctggcaa	gagcgatgtc	tactacttca	gtccaagtgg	780
taagaagtgc	agaagcaagc	ctcagttggc	aaggtacctg	ggaaatactg	ttgatctcag	840
cagttttgac	ttcagaactg	gaaagatgat	gcctagtaaa	ttacagaaga	acaaacagag	900
actgcgaaac	gacctctctca	atcaaaataa	gctgcgctgg	aacactcatc	gtcctgcacc	960
atggcatgcy	ctttcaagac	tctgcttgct	catacgctgt	ttgctctgct	tggaatgtgc	1020
ttacccccctt	ccccttcac	tggatgaactc	ctactcatcc	aagacccagc	ttcattgtct	1080
ccatctcttg	gaagcctgcc	ctgcatactc	caggcagaac	caatcctttc	ctccataagg	1140
gtaaaccaga	cttgaataca	acattgccaa	ttagacaaac	agcatcaatt	ttcaaacaac	1200
cggtaaccac	agtcacaaat	catcctagta	ataaagtga	atcagacca	caacgaatga	1260
atgaacagcc	acgtcagctt	ttctgggaga	agaggctaca	aggacttagt	gcatcagatg	1320
taacagaaca	aattataaaa	accatggaac	tacccaaagg	tcttcaagga	gttgggtccag	1380
gtagcaatga	tgagaccctt	ttatctgctg	ttgccagtgc	tttgacacac	agctctgcgc	1440
caatcacagg	gcaagtctcc	gctgctgtgg	aaaagaaccc	tgctgttttg	cttaacacat	1500
ctcaaccctt	ctgcaaagct	tttattgtca	cagatgaaga	catcaggaaa	caggaagagc	1560
gagtacagca	agtacgcaag	aaattggaag	aagcactgat	ggcagacatc	ttgtcgcgag	1620
ctgctgatac	agaagagatg	gatattgaaa	tggacagtgg	agatgaagcc	taagaatatg	1680
atcaggtaac	tttcgaccga	ctttcccca	gagaaaattc	ctagaaattg	aacaaaaatg	1740
tttccactgg	cttttgccctg	taagaaaaaa	aatgtacccc	agcacataga	gctttttta	1800
agcactaacc	aatgcctttt	tagatgtatt	tttgatgtat	atatctatta	ttcaaaaaat	1860
catgtttatt	ttgagtccta	ggacttaaaa	ttagtctttt	gtaatatcaa	gcaggaccct	1920
aagatgaagc	tgagcttttg	atgccagggtg	caatctactg	gaaatgtagc	acttacgtaa	1980
aacatttggt	tccccacag	ttttaataag	aacagatcag	gaattctaaa	taaatttccc	2040
agttaaagat	tattgtgact	tcactgtata	taaacatatt	tttatacttt	attgaaaggg	2100

gacacctgta	cattcttcca	tcatcactgt	aaagacaaat	aaatgattat	attcacagac	2160
tgattggaat	tctttctggt	gaaaagcaca	cacaataaag	aaccctcgt	tagccttcct	2220
ctgatttaca	ttcaactctg	atccctgggc	cttaggtttg	acatggaggt	ggaggaagat	2280
agcgcatata	tttgaggtat	gaactattgc	ctctggacgt	tgtgagaatt	gtgctttcac	2340
cagaatttct	aagaatttct	gctaaatata	acctagcatg	tgtaattttt	tttccttgcc	2400
tgtgacttgg	acttttgata	gttctataag	aataaggcct	tttcttcctt	tgggcatgag	2460
tcagatacac	aaggaccctt	caggtgttac	tagaaggcgt	ccatgtttat	tgttttttaa	2520
agaatgtttg	gcactctcta	acgtccacta	gcttactgag	ttatcagggt	caggtcagac	2580
tcttggtac	agtgagaggc	agcttctagg	cagagttgct	taatgaaagg	gtttgtaata	2640
ctttacaaac	cattacctgt	acctggcctg	gcctccaaaa	tattaacatt	ctttttctgt	2700
tgaaactcgc	gagtgttaact	ttcataccac	ttgaatttat	tgatatttaa	ttatgaaaac	2760
tagcattaca	ttattaaacg	atttctaaaa	tc			2792